

H A V E L , V .

CZECHOSLOVAKIA

HAVEL, V., MD; PAVLICEK, F., MD.

Internal Medicine and Infection Ward of the Hospital  
(Interni a infekcni oddeleni nemocnice), Beroun  
(for all)

Prague, Prakticky lekar, No 6, 1963, pp 220-221

"Some Problems of So-called Cholangoitic Hepatitis."

HAVEL, VACLAV

✓ Havel, Václav. Remarks on a generalization of the direct product of partially ordered sets. Mat.-Fyz. Casopis Slovensk. Akad. Vied 5, 3-10 (1955). (Czech. Russian summary)

Let  $A$  and  $B$  be partially ordered sets with order relations  $\leq$  and  $\leq_B$  respectively. Let  $S = \bigcup_{b \in B} A_b$ , where  $A_b$  is isomorphic to  $A$  under isomorphisms fixed for each  $b \in B$ . A relation  $r$  is defined in  $S$  as follows. For  $x, y$  in a single  $A_b$ , we have  $xry$  if and only if  $x \leq y$  (in  $A_b \cong A$ ). For  $x \in A_b$  and  $y \in A_{b'}$ , where  $b <_B b'$ , we have  $xry$  if and only if there exists  $a \in A_b$  such that  $x \leq a$  and such that, under the isomorphism  $A_b \cong A \cong A_{b'}$  of  $A_b$  onto  $A_{b'}$ , the relation  $a' \leq y$  holds, where  $a'$  is the image of  $a$  in  $A_{b'}$ . Conditions are found under which  $S$  is isomorphic to  $A \times B$  and under which  $S$  is a lattice.

(S) J.E. Hewitt (Princeton, N.J.).

Havel, Václav. Harmonical quadruplet in Moufang plane. Czechoslovak Math. J. 5(80) (1955), 76-82. (Russian summary)

This paper essentially contains nothing new and seems mainly intended to list, for use in the paper reviewed below, the explicit relation between the coordinates of four points of the  $x$ -axis, which means that they form a harmonic quadruplet. Coordinates are taken from an alternative division ring.

R. H. Bruck.

1 - P/W

Havel, Václav. On the theorem of Staudt in Moufang plane. Czechoslovak Math. J. 5(80) (1955), 83-90. (Russian summary)

The author considers projective planes which satisfy the axiom of the complete quadrilateral and hence can be coordinatized by alternative division rings of characteristic not 2. A Staudt projectivity of line  $\rho$  of plane  $\pi$  upon line  $\rho'$  of plane  $\pi'$  is a one-to-one mapping of the points of  $\rho$  upon the points of  $\rho'$  which preserves the harmonic relation. The author proves that such a mapping is the product of a projectivity of  $\rho$  upon  $\rho'$  and a mapping of  $\rho'$  induced by an automorphism or anti-automorphism of a suitable coordinate ring of  $\pi'$ . To do so he uses the relation of the paper reviewed above to reduce the problem to one concerning Jordan homomorphisms of alternative rings. He then has available known results on Jordan homomorphisms and semi-homomorphisms of associative rings which he is able to carry over to alternative rings by minor additions to proofs given by Hua

HAVE!, ✓

[Espeh Mat. Nauk (N.S.) 8 (1953), 3(55), no. 143-148; MR 15, 392]. As the author states, the theorem is known for Desarguesian planes. R. H. Bruck (Madison, Wis.).

3/2  
RIN

HAVEK, VACLAV

Havek, Václav. Remark on the uniqueness of direct decompositions of elements in modular lattices of finite length. Mat.-Fyz. Časopis, Slovensk. Akad. Vied 5 (1955), 90-93. (Czech. Russian summary)

Let  $S$  be a modular lattice of finite length, and  $I$  the greatest element of  $S$ . Suppose that  $I$  has a direct decomposition into two factors. Then the following properties are equivalent: (A) There is precisely one (to within order of the factors) direct decomposition of the element  $I$  into indecomposable factors. (B) Every element in  $S$  has at most one complement. (C) For every pair of direct decompositions  $I = \bigvee_{i=1}^m a_i = \bigvee_{j=1}^n b_j$ , the relations  $a_i = \bigvee_{j=1}^n (a_i \wedge b_j)$ ,  $i=1, 2, \dots, m$ , hold. (D) No sublattice of  $S$  is isomorphic with any of the four lattices whose diagrams are given. M. Novotný (Brno).

further

Havel, Václav.

*Math*  
✓ Havel, Václav. The decompositions of elements of the lattice with initial condition. Casopis Pst. Mat. 80 (1975), 1-16. (Czech; Russian and English summaries)

Let  $S$  be a lattice satisfying the descending chain condition. Let  $\varrho$  be a symmetric binary relation on  $S$ . The join  $a_1 \vee a_2 \vee \dots \vee a_n = c$  ( $n > 1$ ) is called a  $\varrho$ -decomposition of the element  $c$ , if  $a_i \varrho (a_k \vee a_{k+1} \vee \dots \vee a_n)$  holds for every  $i = 1, 2, \dots, n$  and for every choice of the various  $k_1, k_2, \dots, k_j$  from the set  $\{1, \dots, i-1, i+1, \dots, n\}$ . This definition defines the proper decomposition for  $\varrho = \varrho_1$  where  $x \varrho_1 y$  if and only if  $x$  and  $y$  are incomparable; the direct decomposition for  $\varrho = \varrho_2$  where  $x \varrho_2 y$  if and only if  $x \varrho_1 y$  and  $x \wedge y = 0$ , the strong decomposition for  $\varrho = \varrho_3$  where  $x \varrho_3 y$  if and only if  $x \varrho_1 y$  and  $(x \vee p) \wedge (y \vee p) = p$  for every  $p$  in  $S$ .

A sufficient condition is given for every  $\varrho$ -decomposable element in  $S$  to have a  $\varrho$ -decomposition with  $\varrho$ -indecomposable factors, and a sufficient condition for the uniqueness of this decomposition. In a modular lattice, the first condition is satisfied by the relation  $\varrho_2$ , the second by the relation  $\varrho_3$ .

The reviewer's note: The formulation of theorem 6 of the appendix is confused. M. Novotný (Brno).

Havel, Václav.

No. 3

*Néath*

Václav, Václav. On wedge-shaped surfaces. Časopis  
Pest. Mat. 87 (1955), 51-59. (Tchèch.)  
Soit  $f(x)$  la fonction définie dans  $I_x = (a, b)$ ,  $g(y)$ ,  $h(y)$  les  
fonctions données dans  $I_y = (c, d)$ . Toutes les fonctions  
possèdent les dérivées continues. La surface déterminée  
par l'équation  $z = f(x)g(y) + h(y)$  est l'objet d'étude de  
l'auteur. La surface contient le système des courbes, dont  
chaque paire sont les courbes qui correspondent bi-  
univoquement dans la transformation composée d'une  
translation et d'une affinité.

Au cas spécial on étudie les propriétés de la surface

$$z = \frac{(a-A)x^2 + b - B}{c^2} y^2 + Ax^2 + B,$$

( $a, b, c, A, B$  sont les constantes) qui possède les paraboles  
dans les plans  $x = x_0$  et aussi dans les plans  $z = by + q$ , où  
 $b, q$  satisfont certaines conditions. Les projections des  
paraboles dans le plan  $x=0$  sont les paraboles affines;  
l'axe de l'affinité est l'axe  $x$ . U. Vyjítko (Prague).

*S. H. M.*

Havel, Václav. On a theorem of Kadetávský. Časopis  
Pěst. Mat. 80 (1955), 328-330. (Czech) //

Havel, Václav. On wedge-shaped surfaces. II. Časopis  
Pěst. Mat. 80 (1955), 308-316. (Czech) //

3  
1-FW

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Remark on the existence of finite graphs.

Havel, Václav. Eine Bemerkung über die Existenz der  
endlichen Graphen. Časopis Pěst. Mat. 80 (1955),  
477-480. (Czech. Russian and German summaries).

The purpose of this note is to provide an algorithm for  
deciding whether a given  $r$ -sequence, with first element  
greater than 1, is the structure of a finite graph. Here an  
 $r$ -sequence is defined as a finite non-increasing sequence of  
natural numbers with first element less than the number  
of elements and with an even number of odd elements.  
The structure of a finite graph is defined as the non-in-  
creasing finite sequence of the degrees of its vertices.

4  
1-FW

Topology 16  
Real Variable 16

On parabolic and projective wedge-shaped  
surfaces.

Havel, Václav. Über die parabolischen und projektiven  
Keilflächen. Mat.-Fyz. Casopis. Slovensk. Akad. Vied.  
6 (1956), 197-204. (Czech. German summary)

The author continues his research on "wedge-shaped surfaces" which in cartesian coordinates may be defined by an equation of the form

$$z = (a_1 f + b_1 x + c_1)(a_2 f + b_2 x + c_2)^{-n} y^n + a_3 f + b_3 x + c_3,$$

where  $f = f(x)$  is a function with a continuous derivative over an interval where  $a_2 f(x) + b_2 x + c_2 \neq 0$ . These surfaces have been introduced in a paper by F. Kaderávek [Časopis Pěst. Mat. Fys. 75 (1950), D277-D282]. In § 1 some properties of such a surface  $x$  are derived analytically, mainly concerning the situation of  $x$  with respect to a family  $\lambda_k$  of cylinder surfaces and a family of planes  $\rho_k$ , viz.,  $\rho_k \cap \lambda_k = x \cap \lambda_k = x \cap \rho_k$ . On this basis it is possible to generalize projectively the idea of a wedge-shaped surface, whereby the  $\rho_k$ ,  $\lambda_k$  are replaced by families of conic surfaces. A general wedge-shaped surface  $\alpha$  may be characterized in the following manner. If  $\beta$  and  $\gamma$  are two families of planes or conic surfaces, then the projections of the curves  $\alpha \cap \beta$  and  $\alpha \cap \gamma$  into a plane correspond to each other in a certain central projection or affinity. There are four photographs of models of such surfaces.

H. Schwerdtfeger (Montreal, P.Q.).

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I-FWY

Analytic  
Geometry 16

Projective  
Geometry 16

HAVEL, V.

Some remarks on the theory of projection. p. 692. (POKROKY MATEMATIKY,  
FYSIKY A ASTRONOMIE, Vol. 1, No. 5/6, 1956, Praha, Czechoslovakia)

SD: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

HAVEL, V.

The Pohlke theorem. p. 694. (POKROKY MATEMATIKY, FYSIKY A ASTRONOMIE,  
Vol. 1, No. 5/6, 1956, Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

HAVEL, V.

Definition of roofs with the same declivity over a polygonal ground plan.  
p. 697. (POKROKY MATEMATIKY, FYSIKY A ASTRONOMIE, Vol. 1, No. 5/6, 1956,  
Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No. 12, Dec 1957. Uncl.

HAVEL, V.

HAVEL, V. Parabolic and projective wedge-shaped surfaces. p197. Vol. 6, no. 4,  
1956. MATEMATICKO-FYZIKALNY CASOPIS. Bratislava, Czechoslovakia.

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4--April 1957

HAVEL, VACLAV

Havel, Václav. On the projective conception of translation-surfaces. *Casopis Pěst. Mat.* 81 (1956), 331-336.  
(Czech, Russian and English summaries)

If  $x_t = f_t(v)$ ,  $y_t = g_t(w)$  are two curves through the origin  $O$  of a Euclidean space, then  $z_t = f_t(v) + g_t(w)$  represents a "translation-surface". Observing that  $x_t$ ,  $y_t$ ,  $z_t$  and the point at infinity of the line through  $x_t$ ,  $y_t$  are harmonic, a projective generalization is obtained replacing the hyperplane at infinity by a finite hyperplane. F. A. Behrend.

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HAVEL, V.

Remarks on the existence of a polygon. p. 405.

(Casopis Pro Pestovani Matematiky. Vol.81, no.4, Nov. 1956. Para, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, No.6, June 1957. Uncl.

HAVEL, Vaclav

Uved to promitacich method a theorie krivek a ploch druheho stupne. (Introduction to the Projection Methods and the Theory of Curves and Second-Degree Planes; a university textbook. 1st ed. illus., bibl., index) For the students of the Faculty of Economic Engineering. Prague, SNTL, 1957. 51 p.

Bibliograficky katalog, CSR, Ceske knihy, No. 36. 15 Oct 57. p. 779.

*On the pairs of  $(m, n)$  configurations*

Havel, Václav, Über die Paare der  $(m, n)$  Konfigurationen. Casopis Pěst. Mat. 82 (1957), 360-364.

(Czech. Russian and German summaries)

An  $(m, n)$  configuration  $K$  in  $d$ -dimensional affine space  
is a sequence of  $m+1$  distinct finite points of which the  
first  $n+1$  are linearly independent. It is proved that to  
any  $(3,3)$  configurations  $K_1, K_2$  there exists a point  $S$  at  
infinity such that  $K_1$  is perspective, from  $S$ , with a con-  
figuration  $K_2'$  similar to  $K_2$ . Generalizations are given  
for the cases where  $K_1, K_2$  are  $(n, n)$  configurations, and  
where  $K_1$  is a  $(d, d)$ ,  $K_2$  a  $(d, n)$  configuration. The results  
generalize a classical theorem by Pohlke [see, e.g., F.  
Schur, Math. Ann. 25 (1885), 596-597; E. Stiefel, Comment.  
Math. Helv. 10 (1938), 208-225].

F. A. Behrend.

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1-FW  
Geometry 16

Topology 16

*V Havel, Václav.* On the stereometric development of  
the theory of conic sections. Pokroky Mat. Fys. Astr. 2  
(1957), 687-697. (Czech)

An elementary study of the behaviour of conic sections  
with regard to central projections and certain linear  
mappings in space by a synthetic method.

H. Schwerdtfeger (Montreal, P.Q.)

Havel, Václav. Über die lokalen Spezialisierungen des Satzes vom vollständigen Viereck und des kleinen Desargueschen Satzes. Czechoslovak Math. J. 7(82) (1957), 295-307. (Russian summary)

Consider a projective plane without quadrangles with collinear diagonal points. The author analyzes some relations between certain specializations of the following propositions: (Q) if  $A, B$  are two diagonal points of two plane quadrangles and  $C$  is a point collinear with  $A, B$  belonging to a side of each of the quadrangles, the intersection  $D$  of the other sides of these quadrangles is a point collinear with  $A, B$ ; (d) the theorem of Desargues on perspective triangles. There are also given conditions for the validity of the equation  $(-1)^u = -u$  for every element  $u$  of the ground field of the projective plane.

Local Specialisations of the Theorem on the Complete Quadrangles and of the Small Desargues Theorem.

HAVEL, V.

Basic theorems of multi dimensional central axonometry.

p. 94 (Matematicko-Fyzikalny Casopis) Vol. 7, no. 2, 1957. Bratislava, Czechoslovakia.

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 1, 1958, Jan

HAVEL, V.

Basic principles of central axonometry.

p. 175 (CASOPIS PRO PESTOVANI MATEMATIKY) Vol. 82, no. 2, May 1957,  
Praha, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 3,  
March 1958

HAVEL, V.

Pairs of  $(m,n)$  configurations.

p. 360 (CASOPIS PRO PESTOVANI MATEMATIKY) Vol. 82, no. 3, July 1957,  
Praha, Czechoslovakia

SO: Monthly Index of East European Accessions (EEAI) LC, Vol. 7, No. 3,  
March 1958

HAVEL, V.

"Semi-homomorphisms of alternative circles."

p. 3 (Matematicko-Fyzikalny Casopis, Vol. 8, no. 1, 1958,  
Praha, Czechoslovakia)

Monthly Index of East European Accessions (EEAI) LC, Vol. 7, no. 9,  
September 1958

HAVEL, V.

SCIENCE

Periodical MATEMATICKO-FYZIKALNY CASOPIS. Vol. 8, no. 2, 1958.

HAVEL, V. Basic laws of multidimensional central axonometry. Pts. 2-3. p. 103.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, no. 3, March, 1959. Uncl.

HAVEL, Vaclav

Decomposition of singular linear transformations. Cas pro  
pes mat 85 no.4:439-447 '60.

1. Vysoke ucenii technicke, Brno, Barviceova 85.

HAVEL, Vaclav

Commemorating the 60th birthday of professor Jiri Klapka.  
Pokroky mat fyz astr 6 no.1:48-49 '61.

HAVEL, Vaclav (Brno, Barvicova 85)

The strictly positive solution of a system of linear homogeneous  
equations. Cas pro pas mat 87 no.1:22-30 '62.

1. Vysoka uceni technicka.

HAVEL, Vaclav (Brno)

Report on a scientific conference of Technical College in Brno.  
Cas pro pes mat 87 no.2:255 '62.

HAVEL, Vaclav (Brno)

Geometry of the fourth harmonic point. Cas pro pest mat  
88 no. 2:243-246 '63.

HAVEL, Vaclav

On moving normal trihedrons of the surface 0,3, I. Chekhosl  
mat zhurnal 13 no.3:327-334 S '63.

1. Vysoke ucenii technicke, Brno, Barvicova 85.

HAVLENÍ, Václav; HORNÍK, Stanislav

Stamps from the ceiling and overlying rock of the main seam  
of the Chomutov-Most-Ústí Basin. Gas min geol 8 no.4:376-379  
O '63.

ACC NR: AP6020632

SOURCE CODE: CZ/0045/65/000/003/0186/0190

12  
B

AUTHOR: Havel, Vaclav (Brno)

ORG: Department of Mathematics and Descriptive Geometry, Technical College, Brno  
(Katedra matematiky a deskriptivni geometrie, Vysoke uceni technicke)

TITLE: Notes on generalization of a Demoulin tetragon for the surface  $P_{0.3}^2$

SOURCE: Matematicko-fyzikalny casopis, no. 3, 1965, 186-190

TOPIC TAGS: construction, surface geometry, asymptotic property

ABSTRACT: The characteristics of a certain generalized Lie quadric on the surface  $P_{0.3}^2$  are examined upon its shift along the asymptotic form and conditions are obtained for the case where those characteristics are composed of a double asymptotic tangent and two additional straight lines. The construction of a generalized Demoulin tetragon for the surface  $P_{0.3}^2$  is based on that. Orig. art. has: 15 formulas.  
[Orig. art. in German] [JPRS]

SUB CODE: 12 / SUBM DATE: 26Mar64 / ORIG REF: 003 / OTH REF: 002  
SOV REF: 001

Card 1/1 BLG

L 32089-66 IJP(c)  
ACC NR: AP6020633

SOURCE CODE: CZ/0045/65/000/003/0191/0194  
*22*  
*B*

AUTHOR: Havel, Vaclav (Brno)

ORG: Department of Mathematics and Descriptive Geometry, Technical College, Brno  
(Katedra matematiky a deskriptivni geometrie, Vysoka ucenici technicke)

TITLE: Surfaces with affine generating networks (with the construction of a  
bielliptical surface)

SOURCE: Matematicko-fyzikalny casopis, no. 3, 1965, 191-194  
*5*

TOPIC TAGS: construction, Euclidean space, curve geometry, surface geometry

ABSTRACT: A surface is sought in the affine space  $A_3$  on which the following network  
of curves is located: if  $\gamma$  and  $\omega$  are both bands of curves, then the curves  
correspond to each band in a certain affine transformation and the curves of each  
band are trajectories of the remaining bands with reference to the corresponding  
affine transformations. In addition, a special surface is constructed in the  
Euclidian space  $E_3$  which contains such a network of curves of genuine ellipses.  
Orig. art. has: 10 formulas. [Based on author's German abstract] [JPRS]

SUB CODE: 12 / SUBM DATE: 27Mar64 / ORIG REF: 001 / SOV REF: 002

Card 1/1 *BLG*

"APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R000617920006-0

HAVEL, Vasilav, ins.; KJNA, Lubomir, ins.

Interesting new method in building machine bases. Ins. Slov by  
10 no. 2:53-54 P 165.

1. Zavody V.I.Lenina National Enterprise, Pilzen.

APPROVED FOR RELEASE: 09/19/2001

CIA-RDP86-00513R000617920006-0"

HAVEL, Vaclav

The conception of the Wilczynski directrix and Green boundary  
in the point of a surface with projective connection. Cas  
pro pest mat 90 no.1:87-94 F '65.

On the accompanying normal triple local vectors of the space  
 $A_0^2, 3$ . Pt.2, Ibid.:95-98

1. Higher School of Technology, Brno, Barvicova 85. Submitted  
March 6, 1964, March 31, 1964.

L 3N338-66 EWT(d) IJF(c)

ACC NR: AP6027990

SOURCE CODE: CZ/0045/66/000/001/0003/0009

AUTHOR: Havel, Vaclav (Brno)

*24  
B*

ORG: Department of Mathematics and Descriptive Geometry, Civil Engineering Faculty,  
Institute of Technology, Brno (Katedra matematiky a deskriptivni geometrie,  
Stavoblna Fakulta, Vysoka ucenia technicke)

TITLE: Conjugate nets of axial and axially-radial types relative to any congruence  
of canonical lines with a fixed index

SOURCE: Matematicko-fyzikalny casopis, no. 1, 1966, 3-9

TOPIC TAGS: surface geometry, congruence geometry

ABSTRACT: The article presents a deduction of the conditions for the existence of a finite number of conjugate nets on any surface with connection (in the sense of A. Svoc) which are contained in the system of axial curves relative to any congruence of canonical lines with a fixed index. A similar investigation is made for the axially-radial case. The author thanks Mr. I. Kolar for the reading of the manuscript.  
[Based on author's Eng. abst.] [JPRS: 36,845]

SUB CODE: 12 / SUBM-DATE: 06Jun64 / ORIG REF: 005 / SOV REF: 002  
OTH REF: 002

*rec*  
Card 1/1

0917 1706

HAVEL, Vl.; KLETENSKA, A.; HOLICKY, J.

Contribution to the diagnosis of liver abscess. Cesk. gastroent.  
vyz. 15 no.4:273-275 Je '61.

1. Vnitri oddeleli OUNZ Beroun, prim. dr. Vladislav Havel  
Chirurgicke oddeleli OUNZ Beroun, prim. dr. Jaroslav Holicky.  
(LIVER ABSCESS diag)

HAVEL, Vladimir

On the origin of our microbiology. Cas.lek.cesk 100 no.46:1441-1444  
17 N '61.

1. Tajemnik Cs. spolecnosti mikrobiologicke pri CSAV.  
(MICROBIOLOGY hist)

HAVEL, Vladimir

Contribution to the determination of the perception of vibration.  
Sborn.ved.prac.lek.fak.Karlov.univ. (Hrad Kral) 5 no.4/5:Suppl.:  
307-312 '62.

1. Katedra fyziologie Lekarske fakulty Karlovy university v Hradci  
Kralove; prednosta prof. MUDr. J. Melka.

\*

MRAZ, Josef; MRAZOVÁ, Jirina; HAVEL, Vladimír

Vegetative hybridization of birds by exchange of egg protein.  
Cesk. biol. 4 no.4:235-239 Apr 55.

1. Vojenska lekarska akademie, katedra obecne biologie, Hradec Kralove.  
(HYBRIDITY,  
of domestic fowls by exchange of egg protein)  
(FOWLS, DOMESTIC,  
hybridization by exchange of egg protein.)

HAVEL, VLADIMIR

Category : CZECHOSLOVAKIA/Solid State Physics - Structural Crystallography E-3

Abs Jour : Ref Zhur - Fizika, № 2, 1957 № 3715

Author : Broz, Jaromir; Synecek, Vladimir; Havel, Vladimír  
Title : Structure of Thin Layers of Iron. Obtained by Evaporation in Vacuum

Orig Pub : Chekhosl. fiz. zh., 1955, 5, № 4, 547-548

Abstract : See Ref. Zh. Fiz., 1956, 28595

Card : 1/1

Cathodic Etching in the Metallography of Steel. V. Huyse  
and D. Thiel. (Hannover Lata, 1930, 10, (2), 06-09). (11)

Czech]. Methods used and results obtained with a number  
of steels and cast irons are given.—P. E.

of ① pm

14298\* Relation of Phase Alpha and Sigma in Austenitic Steels Mn-Cr and Distinctions Made Between These Phases by Means of Magnetic Suspension. Vztah fáz α a σ v austenitických ocelích Mn-Cr a rozlišení těchto fáz pomocí magnetické suspenze. (Czech.) V. Havel and M. Žezulová, *Hutnické Látky*, v. 10, no. 7, July 1955, p. 400-403. 2 plates.

Study of the presence and distribution of the phases in austenite, and the reversibility of the phases alpha:sigma. Micrographs. 12 ref.

HAVEL, V.

HAVEL, V. Study by measurement of electric resistance at -193C. of the kinetics of aging after cold deformation. Pt. 1. p. 333. Vol. 6, no. 3, May 1956. CESKISLOVENSKY CASOPIS PRO FYSIKY. Praha, Czechoslovakia.

SOURCE: East European Accessions List (EEAL) Vol. 6, No. 4 April 1957

HAVEL, V.

POLAND/Solid State Physics - Phase Transition in Solids

E-6

Abs Jour : Ref Zhur - Fizika, No 7, 1958, No 15610

Author : Masin A., Havel, V., Tlusta D.

Inst : Not Given

Title : A Study of the Connection Between the Martensite and the Non-needle-like Structure Occurring Along with the Martensite in an Alloy of Iron Manganese and Carbon, Using the Bitter-Akulov Method.

Orig Pub : Bull. Acad. polon sci., 1957, Cl 4, 5, No 3, 181-184

Abstract : In a metastable austenitic steel containing 1% carbon and 5% manganese, after quenching from 1150° C and further cooling in a temperature range below 0°C, causing a martensitic transformation, there was observed the presence of a non-needle-like structure in addition to the normal martensite. On the basis of microscopic investigation of the structure and the use of the magnetic metallography method it is stated that the non-needle-like portions consist of very small platelets of martensite or else of small particles having ferrimagnetic properties analogous to the properties of martensite.

Card : 1/1

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CZECH/37-59-1-5/26

AUTHORS: Vladimír Havel, Alois Mašín

TITLE: Study of Bitter-Akulov Figures on an Iron-Chrome Alloy

PERIODICAL: Československý Časopis Pro Fysiku, 1959, Nr 1, pp 32-37  
+ 2 plates

ABSTRACT: The Bitter-Akulov figures have been studied on an alloy containing 24% chrome. Structural changes during hardening and during annealing at 475 °C were studied. The samples contained 24% Cr, 0.14% C, 0.17% Ni, 0.44% Mn, 0.07% Cu, and 0.65% Si. Cylindrical samples of 8 mm diameter and 6 mm high were prepared. The samples were annealed in vacuum at 1100 °C for 4 hours and then rapidly cooled in water. Some of the samples were then annealed at varying temperatures and some isothermally annealed at 475 °C for 1 hour. The samples were metalographically polished and the surface was subjected to ion-bombardment. The ion-bombardment was used instead of etching (Ref 6). The Bitter-Akulov figures were studied by using a colloidal solution of Fe<sub>2</sub>O<sub>3</sub> (Ref 8). The samples were polished again after ion-bombardment and then coated by the solution. Samples were also electrolytically polished. The magnetic field was perpendicular to the surface of the

Card 1/3

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**Study of Bitter-Akulov Figures on an Iron-Chrome Alloy**

sample. The structure of the annealed samples after ion-bombardment is ferritic with rows of precipitate carbides (Fig 2, p 116a). After hardening, large carbides with elongated shapes (Fig 3) appeared. Dislocations were also observed. Annealing at 475 °C for less than 110 hrs had no influence on the structure, while longer annealing led to the dissolution of the carbides (Fig 4). Annealing at 470 °C for 600 hours leads to precipitation of very small particles of carbides (Fig 5). The appearance of the Bitter-Akulov figures on the samples described above is shown in Figs 6-11. The carbide particles are non-magnetic and show up as white areas. On metalographically polished samples, a maze structure is shown in the vicinity of the carbides (Figs 6,7,11). On the actual face of the grains, deformed maze figures occurred (Fig 7). After electrolytic polishing, the maze structure near the carbides disappears and a needle-shaped domain structure (Fig 8) is observed. Prolonged ion-bombardment has the same effect as electrolytic polishing. Maze structure is due to stresses in the crystal (Refs 5, 9). The mechanically polished samples obviously ✓

Card  
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CZECH/37-59-1-5/26

Study of Bitter-Akulov Figures on an Iron-Chrome Alloy

are strained. The vicinity of carbide precipitates on dislocations is an area of high strain and therefore leads to maze structure. By electrolytic etching, the deformed surface layer is removed and therefore a needle-shaped domain structure appears.

There are 11 figures and 9 references, of which 3 are German, 3 Czech, 1 Soviet and 2 English.

ASSOCIATION: Výzkumný ústav hutnictví Želena MHD. Praha  
(Ferrous Metallurgy Research Institute MHD, Prague) (V. Havel)  
and

Card 3/3 Výzkumný ústav dopravní MD, Praha  
(Transport Research Institute, MD, Prague) (A. Mašín)

SUBMITTED: February 4, 1958

✓

HUNGARY/Solid State Physics - Crystal Morphology.

E

Abs Jour : Ref Zhur Fizika, No 4, 1960, 8778

Author : Masin Alois, Havel Vladimir

Inst : \*Research Institute for Communications; \*\* Research Institute for Ferrous Metallurgy, Prague, Czechoslovakia

Title : On the Display of Dislocations on Faces of Subgrains of Fe-Cr Alloys with the Aid of Ion Bombardment.

Orig Pub : Acta phys. Acad. scient. hung., 1959, 9, No 4, 471-474

Abstract : Hardened and quenched specimens of an alloy of iron with 2.4% chromium, 0.15% carbon, 0.65% silicon, and 0.04% manganese were subjected for 80 -- 130 minutes to ion bombardment at a voltage of 1700 -- 1900 volts. The relief of the surface was found to be similar to the ordinary pattern of display of dislocations in germanium, silicon, and aluminum, except that the dislocations correspond

Card 1/2

- 69 -

HUNGARY/Solid State Physics - Crystal Morphology  
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Abs Jour : Ref Zhur Fizika, No 4, 1960, 8778

not to the pits, but to the hills of the etching pattern. Near the particles of carbides, there are no hills, and apparently only dislocations appear, decorated with carbon. -- V.L. Indenbom

Card 2/2

BR

HAVEL, Vladimir

Factors determining physical fitness. Sborn. ved. prac. lek.  
fak. Karlov. Univ. 8 no.3:375-382 '65.

1. Katedra fyziologie (prednosta: prof. MUDr. J. Melka)  
Karlov University v Hradci Kralove.

HAVEL, Vladimir; SKRANEK, Oldrich; MACKU, Jiri

Nanogram for estimating the effectiveness of work performance.  
Prac. lek. 17 no.1:14-15 Ja '65

I. Katedra fyziologie (vedouci: prof. dr. J. Melka) a katedra  
lekarske fyziky (vedouci: prof. dr. V. Santholzer), lekarske  
fakulty Karlovy University v Hradci Kralove.

PGSMR 1000-1000 (Instal. Krakow, Proj. 1000-1000) Skalica, Slovakia  
Date: 1986-01-01

Highly pulsed counting device, Project 1000, Type 1000  
Ap-100.

I. III. Interni klinika (prof.-mester prof. dr. V. Jankov) -  
katalna fizylogie (prof.-mester dr. M. Jelen) Faculty of  
Medicine Faculty University of Medicine Krakow,

RUMANIA/Soil Science - Mineral Fertilizers.

J

Abs Jour : Ref Zhur Biol., No 22, 1958, 100086

Author : Mikes, K., Havelec, S.  
Inst : -

Title : Application of Anhydrous Ammonia in the Capacity of a  
Nitrogen Fertilizer

Orig Pub : Rev. gospod. agric. sta, 1958, No 3, 34-36 3 (obl.)

Abstract : No abstract.

Card 1/1

HAVELEC, Stanislav, inz.

Use of rotary soil miller for preparing the soil for  
cultivation. Vestnik vyzk zemedel 10 no.1:8-12  
'63.

1. Vyzkumny ustav zemedelske techniky, Repy u Prahy.

HAVELEC, Stanislav, inz.

Kinematics of the rotary tools of tillage machines. Zemedel tech  
10 no.12:707-722 D '64.

1. Research Institute of Agricultural Technology, Rupy near Prague.  
Director of the Institute [inz.] M. Preininger. Submitted on July  
14, 1964.

HOTEL KOT, HOTEL MIL

*Histochemistry of the cornea.* Karel Mazanec and Bohumil Haveika (Histol.-embryol. Ústav, Brno, Czech.). Českářský morfol. 3, 157-67 (1958).—Nine techniques of polysaccharide staining and 9 methods for the staining of lipides were used in the study of corneal tissue sections from hog and human cornea of various ages. The outer layer of the anterior epithelium is rich in lipoproteins and lipides. Bowman's membrane reacts positively for acidic mucopolysaccharides (hyaluronic and chondroitin sulphuric acid complex). Polysaccharides disappear gradually with growing age and are replaced by lipides centripetally. The substantia propria consists of collagenous fibers which are bound together by a ground substance to form a lamellous structure. The interfibrillar ground substance as well as the perifibrillar cover give a pos. reaction for acidic mucopolysaccharides and contain also a mucoprotein component. Descemet's membrane of adult cornea presents a distinct lipoprotein character in the layer adjoining the substantia propria. A lipoprotein reticulum and lipide droplets are present in the posterior corneal epithelium. The cornea consists thus of a thick layer rich in acidic mucopolysaccharides covered on both sides with lipoprotein layers which afford a protection against the aq. medium. I. M. H.

HAVELKA, B., DVM.

Czechoslovakia

Brno, Veterinařství, No 1, 1963, pp 30-32

"Microbiological Values in Animal Fat and their  
Influence on the Quality of Fat."

1

HAVELKA, Bedrich

Scientific and technological symposium "Interkamera."  
Vestnik CSAV 73 no.2:289-290 '64.

Category : CZECHOSLOVAKIA/Optics - Optical technique

K-4

Abs Jour : Ref Zhur - Fizika, No 1, 1957, No 2243

Author : Havelka, Bedrich

Title : Simplified Calculation of the Depth of Focus of Photographic Objectives

Orig Pub : Sbor. Vysoka skoly pedagog. Olomouci. Prirod. vedy., 1954, 13-23

Abstract : No abstract

Card : 1/1

HAVELKA, B.

Three studies on the quality of an optical picture. p. 1-62.  
ROZPRAVY. RADA MATEMATICKO-PRIRODovedecka, Prague, Vol. 66, no. 4, 1956.

SO: Monthly List of East European Accessions. (EEAL), LC, Vol. 5, No. 6 June 1956, Uncl.

HAVEKKA, BEDRICH

Spektralni analysa. Bedrich Kavelka, Engelsert Reprt Milos Mansa. Praha, Nakl. Ceskoslovenske akademie ved. (Spectrum analysis. 1st ed. illus., bibli., diagrs., graphs, index tables) Vol. 1. 1957. 665p.

SO: Monthly Index of East European Accessions (SEAI) LC, Vol. 7, No. 1, Jan. 1958

HAVELKA, B.

"Determination of the structure of a picture in an optic system and of the most favorable picture plane." p. 119.

OLOMOUC, CZECHOSLOVAK REPUBLIC. VYSOKA SKOLA PEDAGOGICKA. SBORNIK. PRIRODNI VEDY.  
Olomouc, Czechoslovakia, No. 3, 1957.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 8, August, 1959.  
Uncl.

CZECHOSLOVAKIA/Optics - General

K

Abs Jour : Ref Zhur Fizika, No 9, 1959, 21201

Author : Havelka, Bedrich

Inst :

Title : International Symposium on Optics and Metrology.

Orig Pub :

Abstract : Brief survey of the papers delivered at the symposium  
in Brussels on 6 - 9 May 1958.

Card 1/1

- 105 -

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R000617920006-0"

HAVELKA, B.

Effect of a chromatic defect on the picture structure. p. b3.

NOVINKY ZAHRANICNI LITERATURY. PRIRODNI VEDY, MATEMATIKA. KNIHY. (Statni  
knihovna CSR. Universitni knihovna v Praze) Praha, Czechoslovakia. no. 4, 1958.

Monthly list of East European Acquisitions (EEAI) LC. Vol. 9, no. 1, January 1960.

Uncl.

HAVELKA, B.

HAVLEKA, B.

Contribution to manufactured tolerances in the measurement prism of a refractometer  
and its adjustment conditions. p. 65.

MOVIMKY ZAHRANICNI LITERATURY. PRIRODNI VEDY, MATEMATIKA. KNTVY. (Statni  
knihovna CSR. Universitni knihovna v Praze) Praha, Czechoslovakia. no. 4, 1958.

Monthly list of East European Accessions (EEAI) LC. Vol. 9, no. 1, January, 1960.

Uncl.

HAVELKA, B.

International discussions regarding the use of optics in metrology. p. 417.

JEMNA MECHANIKA A OPTIKA. Praha, Czechoslovakia. Vol. 3, no. 12, Dec. 1958/

Monthly list of East European Accessions (EEAI) LC, Vol. 9, no. 2, Feb. 1960  
Uncl.

CZECHOSLOVAKIA

Havelka, Bozej, MVDr, CSc.

No affiliation given but city of Bratislava

Prague, Veterinarstvi, No 2 [Feb] 1967, pp 73-76

"Changes in microflora during the thawing of tuna."

HAVELKA, F.

"New System for Fast and Reliable Electrical Grounding". p. 108 (ENERGETIKA, Vol. 3, No. 3, March 1953, Praha, Czechoslovakia.)

SC: Monthly List of East European Accessions, LC, Vol. 3, No. 5, May 1954, Unclassified.

HAVELKA, F.

"Instructions for the Construction of Apparatus for Ground Control." p. 251, Praha,  
Vol. 3, no. 7, July 1953. "Preheating Feed Water by Exhaust Steam." I-II. p.3-4 of cover.  
Praha, Vol. 3, no. 7, July 1953.

SO: East European Accessions List, Vol. 3, No. 9, September 1954, Lib. of Congress

HAVELKOVA, E.; HAVELKA, I.

Devastation of wooden buildings by fungus. Cesk. hyg. 7 no.5:313-316  
Je '62.

1. OHES Liptovsky Mikulas.

(FUNGI) (HOUSING)

— 1 —

## Section 9: Writing

"The Destructive Fleur Noctile (Triaenophorus leucophaeus Syst..)"  
p. 43. (Zoologische Abhandlungen. Vol. 1, No. 1,  
1851, p. 1.)

Vol. 3, No. 1.

80: Monthly List of East African Accipiters, Vol. 1, No. 1, March 1954, incl.

Ravallin, J.; Menzel, J.

"Notes on The History of the Capricorn Electra (Netherland, Amstelba F.)"  
p. 111. (Zoologische A Afrikanische Liste. Vol. 2, no. 1, Oct. 1863, Berlin)

SC: Monthly List of East European Accessions, Vol. 3, No. 3.  
Library of Congress, March 1854, Uncle.

HAVELKA, J.

"Water Pollution and the Protection of Water Economy Interests." p. 1162 (ZA SOCIALISTICKÉ  
ZEMĚDELSTVÍ, Vol. 3, No. 10, Oct. 1953) Praha, Czechoslovakia

SO: Monthly List of East European Accessions, Library of Congress, Vol. 3, No. 4  
April 1954. Unclassified.

VOHNOUT, S.; ROHLING, S.; HAVELKA, J.

Standardization of radioisotope methods used in endocrinology.  
1. Examination of thyroid gland function using radiciodine.  
Cesk. rentgen. 17 no.5:289-298 S '63.

1. Vyzkumny ustav endokrinologicky v Praze, reditel doc. dr.  
K. Silink.

(THYROID FUNCTION TESTS)  
(IODINE ISOTOPES, DIAGNOSTIC)

VOHNOUT,S.; ROHLING,S.; HAVELKA,J.

Dosimetric problems associated with the examination of thyroid function by means of radioiodine. Rev. czech. med. 10 no.1: 17-30 '64.

1. Research Institute of Endocrinology, Prague; director:  
doc. K.Silink, M.D.

\*

CZECHOSLOVAKIA

FELT, V., ROHLING, S., NAVELEKA, J., HLADOVEC, J., and VOHNOUT, S., Research Institute of Endocrinology (Vyzkumny ustav endokrinologicky), Prague, Docent K. SILINK, MD, director; and Research Institute for Pharmacy and Biochemistry (Vyzkumny ustav pro farmacie a biochemii), Prague, Engr J. NEMECEK, director.

"Distribution of  $^{14}\text{C}$ -Cholesterol in the Liver, Lung, Heart, and Kidney of Rabbits in Three Stages of Experimental Atherosclerosis"

Prague, Casopis Lekaru Ceskych, Vol CII, No 37, 13 September 63,  
pp 1007-1011.

Abstract [Authors' English summary]: The distribution of radioactivity in organs after an intravenous administration of  $^{14}\text{C}$ -cholesterol in rabbits during three stages of experimental atherosclerosis was essentially the same as in a control group. During the stationary stage the radioactivity was highest in the liver as a manifestation of an increased elimination of cholesterol from the organism. During the regressive stage the concentration declined most rapidly in the heart and most slowly in the liver. Eight references.

1/1

HAVELKA, J.; DOUTLIK,S.; ZACKOVA,J. Technicka spoluprace: VACEK, Zdenek

Inorganic phosphorus in the cerebrospinal fluid in some infectious diseases. Cas. lek. cesk. 102 no.49:1347-1353 6 D'63.

1. Laborator pro vyzkum poliomyelitidy fakulty detskeho lekarstvi KU v Praze; reditel: prof.dr.J.Prochazka.

PROCHAZKA, J.; HAVELKA, J.; HEJZLAR, M.; Technicka spoluprace: KUBIKOVA, M.  
PAROUBEK, M.

Excretion of chloramphenicol in human milk. I. After a single dose of the antibiotic. Cas. lek. cesk. 103 no. 14:378-380  
3 Apr'64.

1. Laborator pro vyzkum patologie, terapie a prevence infekcnych nemoci pri infekcni klinice na bulovce, Praha (prednosta: prof. dr. J. Prochazka, DrSc.) a Vojensky ustav hygieny, epidemiologie, Mikrobiologie, Praha (prednosta: doc. dr. K. Makovicka).

\*

HAVELKA, Jaroslav, inz.; PALAS, Miroslav, inz.; SCHARM, Bohdan, inz.

New concept of the metallogeny of nonferrous ores of the  
Jesenice region and its effect on geologic prospecting. Geol  
pruzkum 5 no.8:225-227 Ag '63.

1. Vysoka skola banska, Ostrava.

HAVELKA, Josef

Solved research tasks on fish breeding. Vestnik CSAZV 7 no.12:641-  
644 '60.  
(EEAI 10:4)  
(Czechoslovakia--Fish culture)

HAVELKA, Josef

On generalization of an affine normal. Chelkosl mat zhurnal 13  
no.2:240-266 Je '63.

1. Vysoka učeni technicke, Brno, Barvicova 85.

HAYEKHA, J.

MAGYAR HIRADASTECHNIKA  
TELECOMMUNICATION ENGINEERING  
VOL. 11--1951  
N°. 3-4 March - April

J. Hayekha.  
The present trend in the development ..... 15--16  
of television

ASW-SEA METALLURGICAL LITERATURE CLASSIFICATION

HAVELKA, J.

Utilization of small hydraulic-power plants. p. 217.  
ZA SOCIALISTICKOU VEDU A TECHNIKU, Prague, Vol. 4, no. 5, May 1954.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6,  
June 1956, Uncl.

Havelka, J.

How are the results of research applied in practice? p. 325.  
Research from the viewpoint of Soviet experts. p. 328. NOVA  
TECHNIKA. (Rada vedeckych technickych spolecnosti pri Ceskos-  
lovenske akademii ved) Praha. Vol. 4, no. 7, July 1954.

Source: EEAL LC Vol. 5, No. 10 Oct. 1956

HAVELKA, J.

HAVELKA, J. State and prospects of Czechoslovak television. p. 249.

Vol. 4, No. 6, June 1955  
ZA SOCIALISTICKOU VELU A TECHNIKU  
TECHNOLOGY  
Praga, Czechoslovakia

So: East European Accessions, Vol. 5, No. 5, May 1956

HAVEL, J.

A contributioon to the discussion on realization of the results of research.

p. 181.  
Vol. 5, no. 4, 1955  
ZA SOCIALISTICKOU VEDU A TECHNIKU  
Praha, Czechoslovakia

Source: Monthly List of East European Accesions, (EEAL), LC, Vol. 5, no. 2  
February 1956, Uncl.

HAVELKA, J., CSCLOBEE, J., PAVLICKY, B.

How research contributed to the power industry and what its further purpose is. p.187. ENERGETIKA. (Ministerstvo paliv a energetiky  
Hlavni sprava elektraren) Praha. Vol. 5, no. 5, May 1955

SOURCE: East European Accessions List, (EEAL), Library of Congress,  
Vol. 4, No. 12, December 1955

HAVELKA, J. - Vol. 4, no. 2, Feb. 1954. ZA SOCIALISTICKOU VEDU A TECHNIKU

Automatic and remote controls and telemetry in the electric power industry.  
p. '77.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955  
Uncl.

HAVELKA, J:

New national laboratory for supervoltages at Bechovice. p. 35  
(Czechoslovak Heavy Industry. No. 5, 1957. Prague, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

FEILT, V.; ROHLING, S.; HAVELKA, J.; HLADOVEC, J.; VOHNOUT, S.

Distribution of 4-C<sub>14</sub>-cholesterol in the liver, lungs, heart and kidneys in rabbits in 3 developmental phases of experimental arteriosclerosis. Cas. lek. cesk. 102 no. 37:1007-1011  
13 S '63.

1. Vyzkumny ustav endokrinologicky, Praha, reditel doc. dr.  
K. Silink. Vyzkumny ustav pro farmacii a biochemii, Praha,  
reditel inz. J. Nemcek.  
(CHOLESTEROL) (LIPID METABOLISM) (LIVER)  
(HEART) (LUNG) (KIDNEY) (ARTERIOSCLEROSIS)  
(CARBON ISOTOPES)

21(3,4)

PHASE I BOOK EXPLOITATION CZECH/2404

Habanec, V., Doctor; J. Havelka, Engineer; Zd. Hlasivec,  
Doctor of Medicine; Zb. Hrdlička, Engineer; I. Chudáček  
(Graduate in Physics); V. Kouřím, Engineer; J. Kuba,  
Doctor of Natural Sciences; V. Myslivec, Professor; Jan  
Túma, Engineer; and M. Voríšek (Graduate in Physics)

Atom a jaderná technika (The Atom and Nuclear Engineering)  
Praha, Naše vojsko, 1957. 290 p. (Series: Universita  
vojáka) 4,000 copies printed.

Reviewers: Bittner, Engineer; Drška, Engineer; Hrdlička,  
Engineer; Kulka, Engineer; Spurný, Doctor; and Simáně,  
Engineer; Ed.: Stanislav Vobořil.

PURPOSE: The book is intended for the general reader.

COVERAGE: The book outlines the principles and operation of  
nuclear power plants and the use of radioisotopes. The intro-  
ductory chapters cover the fundamentals of nuclear physics and  
radioactivity. Several subsequent chapters deal with reactor  
physics, types of reactors, their engineering, control and

Card 1/12

The Atom and Nuclear Engineering

CZECH/2404

instrumentation. Operating and planned nuclear power installations are described. A short chapter is devoted to the possibility of using nuclear power in transportation. The remaining chapters report on radioisotopes for industry, and on radiology, radiation hazards and safety measures. No personalities are mentioned. There are 25 references, all Czech.

## TABLE OF CONTENTS:

Introduction	5
I. Studying the Structure of matter (Ivo Chudáček, Graduate in Physics)	7
The world of atoms and molecules	7
Atom "sounding" by alpha particles	16
The hydrogen atom	18
Wave properties of the basic constituents of an atom	20
Quantization of physical values	22

Card 2/ 12

## The Atom and Nuclear Engineering

CZECH/2404

What spin means	23
Electron shell structure	24
Matter and energy	
Interaction of substances	27
Corpuscular properties of light	28
Interrelation of energy and mass	29
Atomic nucleus	
Structure of nucleus	33
Bond energy	34
Bombardment of atomic nucleus	36
Emissions from the atomic nucleus	38
Alpha radioactivity	38
Beta radioactivity	39
Gamma radiation	39
Models of atomic nuclei	39
Elementary atomic particles	
"Classical" elementary particles	40
New elementary particles	42
Discovery of the antiproton and antineutron	45
Fundamental measuring instruments	

Card 3/12

## The Atom and Nuclear Engineering

CZECH/2404

used in nuclear physics	
Use of ionization for physical measurements	46
Cloud chamber	48
Ionization chamber	49
Geiger-Müller counters	49
Scintillation counters	50
Nuclear emulsion	51
II. Accelerators of Charged Particles (J. Habanec, Doctor)	52
Main Types of Accelerators and Their Characteristics	58
Linear accelerators	58
Circular accelerators	59
First Czechoslovakian cyclotron	62
Synchrocyclotrons	63
III. Liberation of the Energy of Atomic Nucleus (M. Voříšek, Graduate in Physics)	69
Energy of Chemical Reactions	69

Card 4/12

## The Atom and Nuclear Engineering

CZECH/2404

Nuclear Reactions	72
Discovery of nuclear fission	74
Physical explanation of fission	76
Delayed neutrons	80
Energy released by fission	81
Passage of neutrons through a medium	83
Fast-neutron reactions	83
Medium-energy neutrons	84
Slow neutrons	85
Resonance neutrons	86
Thermal neutrons	87
Chain reaction and critical size	88
Reactor start-up and regulating system	94
IV. Preparation and Regeneration of Nuclear Fuel (Václav Kouřim, Engineer)	
Natural uranium	97
Separation of uranium from ore	98
Production of $U^{235}$	99
Uranium 233	101
	102

Card 5/12

## The Atom and Nuclear Engineering

CZECH/2404

Plutonium 239	102
Regeneration of Nuclear Fuel [by using an organic solvent]	104
Other methods of regeneration	107
V. Nuclear Reactors (Zbyněk Hrdlička, Engineer)	108
Principles of Nuclear Reactors	108
Thermal reactor	108
Fast reactor	110
Classification of types of reactors	111
Classification of reactors according to purpose	111
Research reactor	111
Reactors aiding the solution of certain basic problems	112
Reactors aiding the solution of certain special problems	118
Reactors for the production of fissionable material	125
Reactors for the generation of energy	126
Reactors for the production of both energy and fissionable material	126
VI. Nuclear Engineering (Jiří Havelka, Engineer)	130

Card 6/12

## The Atom and Nuclear Engineering

CZECH/2404

Granite and sand - the fuel of the future	131
Conversion of heat into energy	
Use of compressed gas	133
Use of water or deuterium under pressure	134
Use of melted metallic elements	134
Steam-power reactors	138
Use of gas turbines	139
Power-industry requirements of reactor designs	139
Fuel supply for atomic power stations	141
Waste removal from atomic power stations	142
Protection against radiation	
Safety devices in atomic power stations	144
Cost of atomic power production	146
VII. World Progress in Atomic-Power Development (Jan Tuma, Engineer)	149
First Experimental Atomic Power Stations	153
First Soviet atomic power station	153
Large Soviet atomic power projects	155
Nuclear power generation in Great Britain	159

Card 7/12

## The Atom and Nuclear Engineering

CZECH/2404

Harwell - world - famous atomic university	160
Calder Hall - first British atomic power station	160
Other atomic power projects in Britain including gas-cooled plants	163
From Calder Hall to Dounreay	163
Use of nuclear energy in the United States	165
First industrial atomic power station in the United States	166
The PDP nuclear power project	167
The Package-type and the pocket-type nuclear power plants	169
"Baby reactor"	170
Atomic batteries	171
Technological advances in atomic power generation	172
VIII. Atomic Power in Transportation (Jan Tůma, Engineer)	183
Use of Nuclear Propulsion in Transportation	184
Selection of nuclear-power systems for transportation vehicles	185
Nuclear propulsion in marine transportation	189

Card 8/12

## The Atom and Nuclear Engineering

CZECH/2404

Atomic submarine "Nautilus"	189
Submarines for Arctic regions	193
Atomic icebreaker	194
Atomic cargo vessels	194
Atomic locomotive	196
Nuclear propulsion for automobiles	199
Atomic-powered engines for aircraft	200
From jets to interplanetary rockets	203

## IX. Radioisotopes and Their Use in Industry (J. Kuba, Doctor of Natural Sciences, Winner of State Prize)

Production of Radioisotopes	204
Radiation Properties Applicable to Technology	206
Energy of radiation	208
Specific activity	211
Use of radioisotopes in technology	212
Flaw detection by radioisotopes	213
Radioisotopes in measurement	218
Checking of metalworking tools by radioisotopes	220
Checking wear of machine parts	221

Card 9/12

The Atom and Nuclear Engineering

CZECH/2404

Study of metal diffusion, alloy structure and disintegration of elements	223
Control of metallurgical processes	225
Other uses of radioisotopes	226
Prospects for the Use of Radioisotopes in the Czechoslovak Republic	227
X. Use of Artificial Radioisotopes in Medicine (Zdeněk Hlavíček, Doctor of Medicine)	
Significance of the chemical properties of radioisotopes in internal therapy	229
Radioisotopes for internal therapy	231
Effect of radioisotopes applied externally	235
Radioisotopes for external application	237
Radioisotopes for infiltrating roentgenoscopy	240
XI. Biological Effects of Ionization: Radiation Injuries (Zdeněk Hlavíček, Doctor of Medicine)	
Basic effects of radiation on the biochemical processes in living organisms	242

Card 10/12

## The Atom and Nuclear Engineering

CZECH/2404

Effect of radiation on cells	243
Effect of radiation on tissues	244
Genetic effects of radiation	245
Permissible doses of irradiation	246
Lethal doses of irradiation	247
Safety measures	247
Radiation injuries in man	248
Development of radiation sickness	250
Sources of radiation injuries in man and protective measures	252
XII. Use of Isotopes in Agrobiological and Forestry Research (Václav Myslivec, Doctor, Professor, Member of the Czechoslovak Academy of Sciences)	
Use of the radioisotope P 32	255
Radioisotopes for uncovering the secret of photosyntheses	259
Radioactive carbon in agrobiology	262
Heat as a promoter of reactions	267
XIII. Thermonuclear Reactions (M. Kulka, Engineer)	
Heat as a promoter of reactions	272
Card 11/12	273